



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,798	07/10/2003	Yu-Ri Song	6192.0301.US	1921

7590 04/12/2005  
McGuire Woods LLP  
Tyson Corner  
Suite 1800  
1750 Tysons Boulevard  
McLean, VA 22102-4215

EXAMINER

FARAHANI, DANA

ART UNIT PAPER NUMBER

2891

DATE MAILED: 04/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/615,798

Applicant(s)

SONG ET AL.

Examiner

Dana Farahani

Art Unit

2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-15 is/are allowed.
- 6) ☒ Claim(s) 1 and 4-8 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang et al., hereinafter Hwang (US Patent Application Publication 2003/0007108, Application No. 10/183,683) in view of Yoshitake et al., hereinafter Yoshitake (US Patent Application Publication 2002/0195609A1, Application No. 10/178,714), and further in view of Ikeda et al., hereinafter Ikeda (US Patent 6,554,407).

Regarding claims 1 and 8, Hwang discloses in figure 24, a thin film transistor array panel comprising: a substrate; a gate line 45 formed on the substrate; a plurality of storage conductors 66 and 67 formed on the substrate; a gate insulating layer 47 formed on the gate line and the storage conductor; a semiconductor layer 49 formed on the gate insulating layer; a data conductor layer 53 formed on the semiconductor layer; a passivation layer 69 formed on the data conductor; and a pixel electrode 71 of figure 25 formed on the passivation layer.

Hwang does not disclose each storage conductor includes a plurality of branches, wherein at most one of the branches of each storage conductor has an isolated end.

Yoshitake discloses in figure 3 an electrode 23 of an LED with a plurality of branches, but does not disclose at most one of the branches of the electrode has an isolated end. Ikeda discloses in figure 10(b), an electrode 19, which has a discontinuity portion according to the

Art Unit: 2891

defective layers portions beneath it. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to change the physical appearance of the storage electrode of the Hwang reference in order to affect the characteristics of the induced particle movements by the pixel electrode, and consequently the image generated by the LCD, in which the pixel electrode is used, since the pixel electrode effectiveness depends on the shape and area of the storage electrode.

Regarding claim 4, see Yoshitake, figure 3, wherein it is shown that the electrode has two longitudinal branches and two oblique branches, 23c, and the branches form a closed loop.

Regarding claims 5 and 6, see Yoshitake, figure 3, wherein it is shown that the electrode has two longitudinal branches, 23b, and three/four oblique branches, 23c, and the branches form closed loops.

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hwang, Yoshitake and Ikeda, as applied to claim 1 above, and further in view of Yamakita et al., hereinafter Yamakita (US Patent 6,600,540).

Hwang in view of Yoshitake and Ikeda, renders obvious the claimed invention, as discussed above, except for the pixel electrode having cutout portions.

Yamakita discloses in figure 17, the pixel electrode 6 has cutout regions. Yamakita also discloses that when there is two portions of the same electrode have different electric fields, the liquid crystal molecules around the lack portion become the transition nucleus and transition of the alignment state of the liquid crystal layer reliably takes place (see column 3, lines 49-56). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to make cutout regions in the pixel electrode of the device of the Hwang reference in

view of Yoshitake and Ikeda, in order to improve the transition of the alignment state of the liquid crystal layer, as Yamakita teaches.

*Allowable Subject Matter*

4. Claims 9-15 are allowed.
5. Claim 2 and 3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:  
The primary reason for indication of allowability of claims 2 and 3 is the inclusion therein of the limitation that of the longitude portions of the storage electrodes are connected together by connecting portions.

*Conclusion*

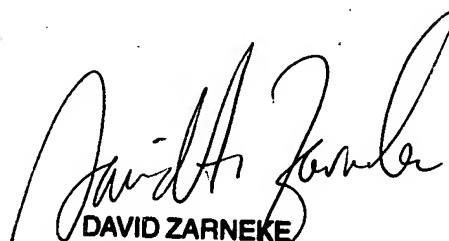
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Farahani whose telephone number is (571)272-1706. The examiner can normally be reached on M-F 9:00AM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571)272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2891

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D. Farahani

  
DAVID ZARNEKE  
PRIMARY EXAMINER  
4/8/05